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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,795	09/30/2003	Mark R. Richards	42P17287	8367

7590 06/23/2006

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EXAMINER

SMOOT, STEPHEN W

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/676,795

Applicant(s)

RICHARDS ET AL.

Examiner

Stephen W. Smoot

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-20 is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 and 16 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to applicant's amendment filed on 20 April 2006.

Claim Objections

1. Claim 3 is objected to because of the following informality:

In claim 3, line 2, change "the at least one electrode" to --the one electrode-- for proper antecedence to claim 1, lines 6-7.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Independent claim 1, as amended on

Art Unit: 2813

20 April 2006, contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The applicant's original disclosure does not provide support for the claimed feature "an interface material having first and second portions" when combined with the claimed feature "the second portion ... having a second thickness that is less than the first thickness", as claimed in claim 1, lines 6-10, because the term "an interface material" requires that the first portion and the second portion are the same material. However, although the applicant's original disclosure does provide support for a second portion that can be titanium nitride (see paragraph [0025]) with a thickness that is less than that of a first portion that can be titanium oxide (see paragraph [0029]), these are different materials. Claims 2-10 are rejected under 35 U.S.C. 112, first paragraph, because they depend on claim 1.

Allowable Subject Matter

4. Claims 11-20 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter: Claims 11-20 are allowed because the prior art of record does not teach or suggest, in combination with the other claim limitations, a semiconductor device that includes a second layer with a plurality of lower interface sections and with each lower

Art Unit: 2813

interface section having a first thickness, a third layer on the second layer with a plurality of polymeric sections that includes a plurality of roughness formations on a surface of the polymeric sections, and a fourth layer on the third layer with a plurality of upper interface sections and with each upper interface section having a second thickness, wherein the second thickness is greater than both a height of the roughness formations and the first thickness.

Response to Arguments

6. Applicant's arguments, filed on 20 April 2006 (see page 5), regarding the above rejection of claims 1-10 have been fully considered but they are not persuasive.

Regarding claims 1-10, the applicant argues that the titanium oxide layer (68) originally disclosed as having a thickness of at least 150 angstroms is an example of the as claimed first portion and the titanium nitride layer (44) originally disclosed as having a thickness between 50 and 100 angstroms is an example of the as claimed second portion. That is, the applicant's argument is on the basis that the first portion and the second portion are different materials. However, claim 1 as amended on 20 April 2006 has the limitation "an interface material having first and second portions", which implies that the first portion and the second portion are made of the same material. So, the above rejection under 35 U.S.C. 112, first paragraph, stands because the applicant's original disclosure does not have support for the first portion and the second portion being made of the same material.

If claim 1 were rewritten to clarify "a first interface material having a first portion and a second interface material having a second portion", the claim would then be supported by the original disclosure and the rejection under 35 U.S.C. 112, first paragraph, could be withdrawn. If such a change were made by the applicant, claims 3, 4, 10 would need to be rewritten to clarify that the as-claimed "interface material" is the first interface material.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

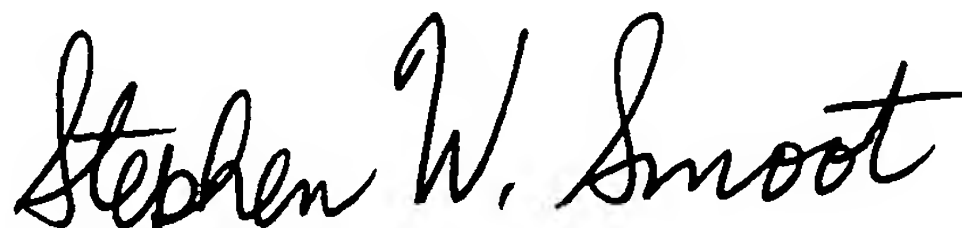
Art Unit: 2813

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen W. Smoot whose telephone number is 571-272-1698. The examiner can normally be reached on M-F (8:00 am to 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SWS


STEPHEN W. SMOOT
PRIMARY EXAMINER